

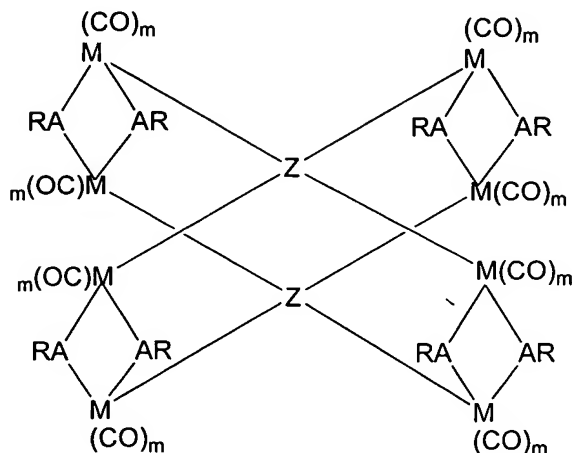
Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-22. (Cancelled)

23. (Currently Amended) A tetragonal prismatic supramolecule having the following structure:



wherein

M is Re, Mn, Cr, Mo, W, Fe, Ru, or Os,

Z is a nitrogen-based tetradentate ligand, in which four nitrogen atoms are bonded to four metal atoms;

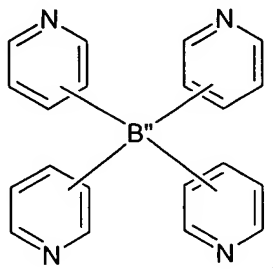
A is O, S, Se, or Te;

R is C₁~C₁₆ alkyl, (CH₂)_n-aryl, or (CH₂)_n-aryl-(O-C₁~C₁₆ alkyl)_p, in which n is 0-15, p is 1-3; and

m is 1, 2, 3, or 4.

24. (Original) The tetragonal prismatic supramolecule of claim 23, wherein M is Re.

25. (Original) The tetragonal prismatic supramolecule of claim 24, wherein m is 3.
26. (Original) The tetragonal prismatic supramolecule of claim 23, wherein R is C₁~C₁₆ straight chain alkyl.
27. (Original) The tetragonal prismatic supramolecule of claim 23, wherein A is O.
28. (Currently Amended) The tetragonal prismatic supramolecule of claim 23, wherein Z is a ligand of the formula:



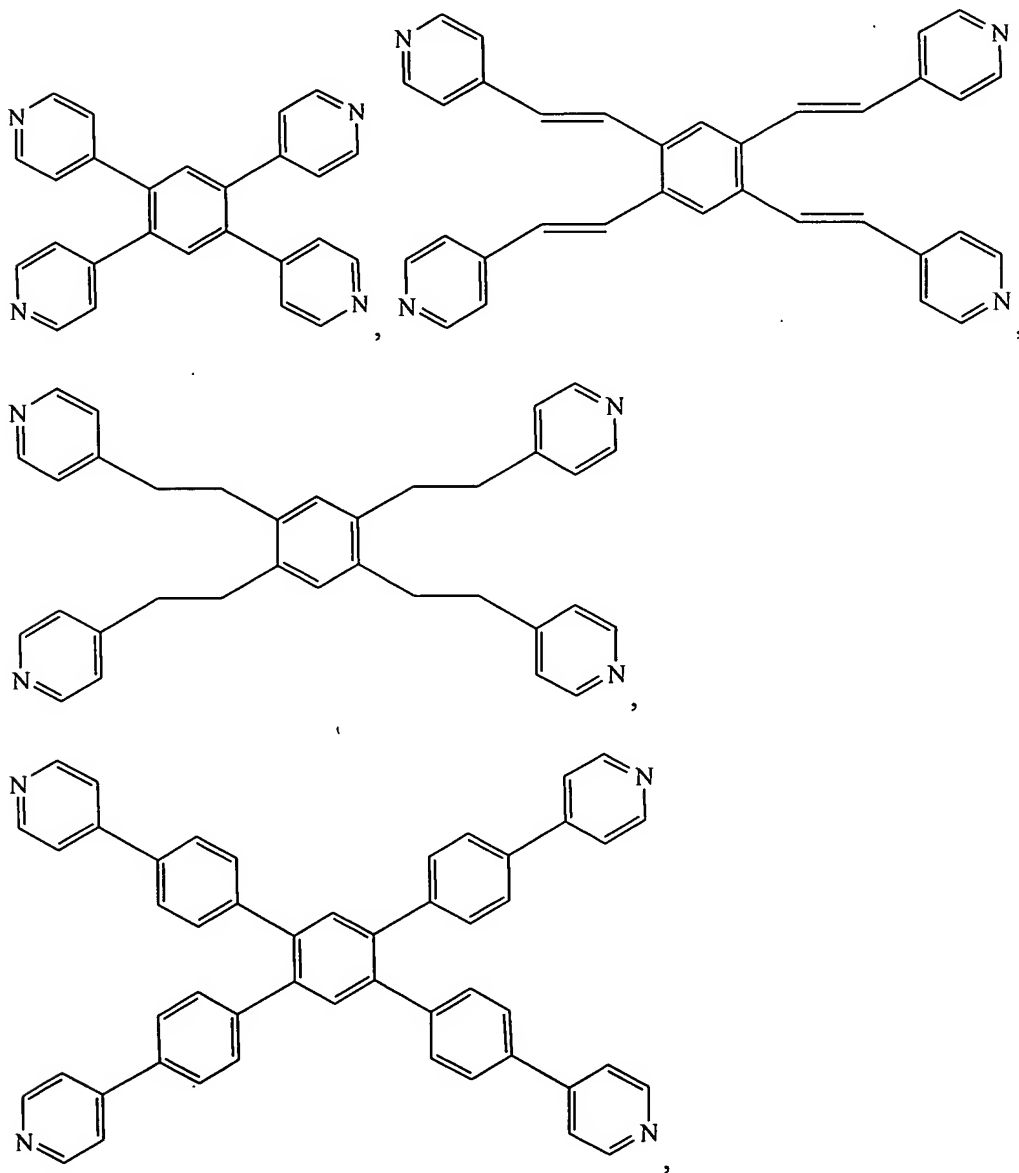
wherein B'' is ~~alkyl, alkenyl, alkynyl, cyclyl, heterocyclyl, aryl, or heteroaryl~~ a tetravalent hydrocarbon chain, a tetravalent saturated hydrocarbon ring, a tetravalent saturated heterocyclic ring, a tetravalent aromatic ring, or a tetravalent heteroaromatic ring.

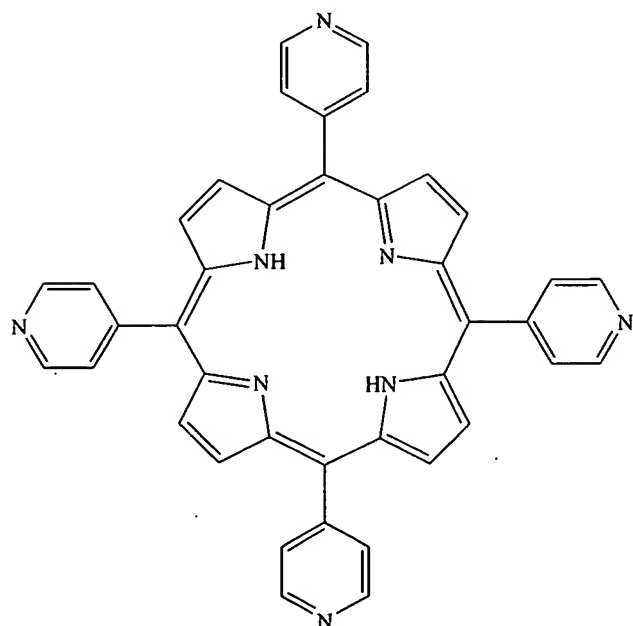
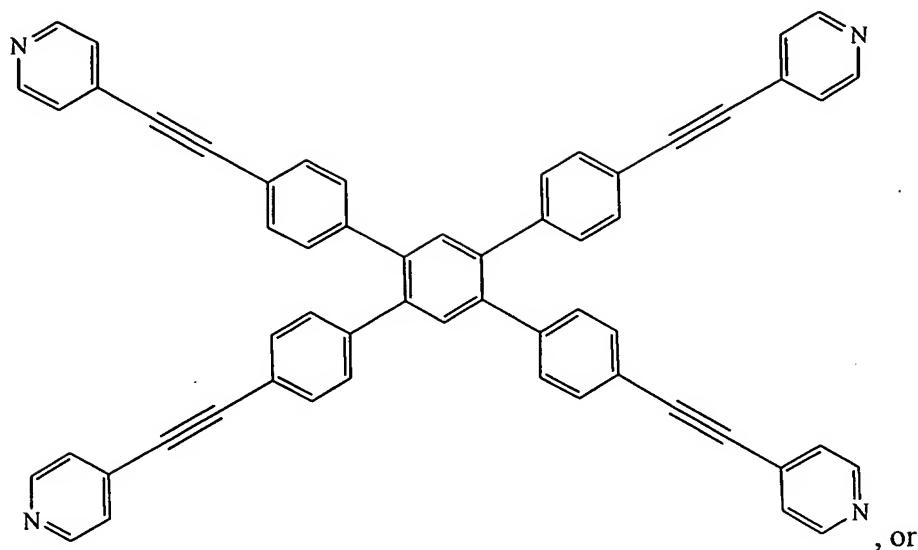
29. (Currently Amended) The tetragonal prismatic supramolecule of claim 28, wherein B'' is ~~alkenyl, alkynyl, or aryl~~ a tetravalent hydrocarbon chain or a tetravalent aromatic ring.
30. (Original) The tetragonal prismatic supramolecule of claim 29, wherein Z is 1,2,4,5-tetraethynyl(4-pyridyl)benzene.
31. (Original) The tetragonal prismatic supramolecule of claim 28, wherein M is Re.
32. (Original) The tetragonal prismatic supramolecule of claim 28, wherein m is 3.

33. (Original) The tetragonal prismatic supramolecule of claim 28, wherein R is $C_1 \sim C_{16}$ straight chain alkyl.

34. (Original) The tetragonal prismatic supramolecule of claim 28, wherein A is O.

35. (Original) The tetragonal prismatic supramolecule of claim 28, wherein Z is



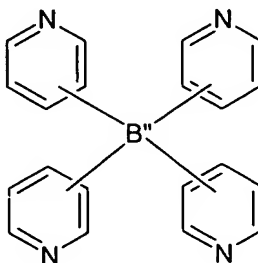


36. (Original) A method for making a tetragonal prismatic supramolecule of claim 23, the method comprising reacting $M(CO)_{m+2}$ with a nitrogen-based tetradentate ligand in the presence of an RAH at an elevated temperature to form the prismatic supramolecule, wherein M, m, R, and A are as defined in claim 23.

37. (Original) The method of claim 36, wherein M is Re and m is 3.

38. (Original) The method of claim 36, wherein RAH is a C₁~C₁₆ aliphatic alcohol.

39. (Currently Amended) The method of claim 36, wherein Z is a ligand of the formula:



wherein B'' is ~~alkyl, alkenyl, alkynyl, cyclyl, heterocyclyl, aryl, or heteroaryl~~ a tetravalent hydrocarbon chain, a tetravalent saturated hydrocarbon ring, a tetravalent saturated heterocyclic ring, a tetravalent aromatic ring, or a tetravalent heteroaromatic ring.

40. (Original) A composition for emitting luminescence at room temperature, comprising:

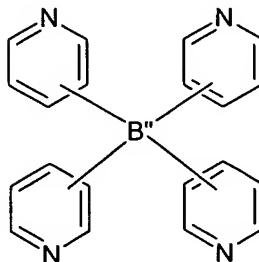
a tetragonal prismatic supramolecule of claim 23 and a solution.

41. (Original) The composition of claim 40, wherein M is Re and m is 3.

42. (Original) The composition of claim 40, wherein R is a C₁~C₁₆ aliphatic alkyl.

43. (Original) The composition of claim 40, wherein A is O.

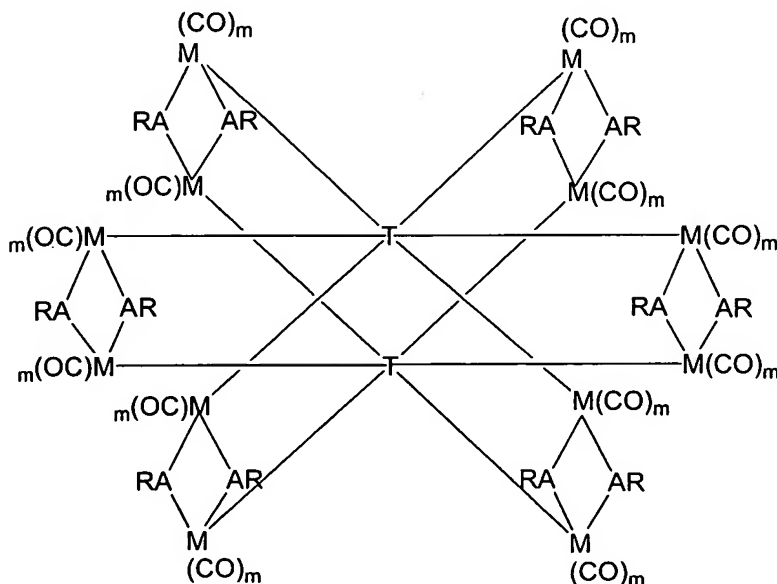
44. (Currently Amended) The composition of claim 40, wherein Z is a ligand of the formula:



wherein B'' is ~~alkyl, alkenyl, alkynyl, cyclyl, heterocyclyl, aryl, or heteroaryl~~ a tetravalent hydrocarbon chain, a tetravalent saturated hydrocarbon ring, a tetravalent saturated heterocyclic ring, a tetravalent aromatic ring, or a tetravalent heteroaromatic ring.

45. (Previously Presented) The composition of claim 40, wherein the solution is an organic or aqueous solution.

46. (Currently Amended) A hexagonal prismatic supramolecule having the following structure:



wherein

M is Re, Mn, Cr, Mo, W, Fe, Ru, or Os,

T is a nitrogen-based hexadentate ligand, in which six nitrogen atoms are bonded to six metal atoms;

A is O, S, Se, or Te;

R is $C_1\sim C_{16}$ alkyl, $(CH_2)_n$ -aryl, or $(CH_2)_n$ -aryl-(O- $C_1\sim C_{16}$ alkyl) $_p$, in which n is 0-15, p is 1-3; and

m is 1, 2, 3, or 4.

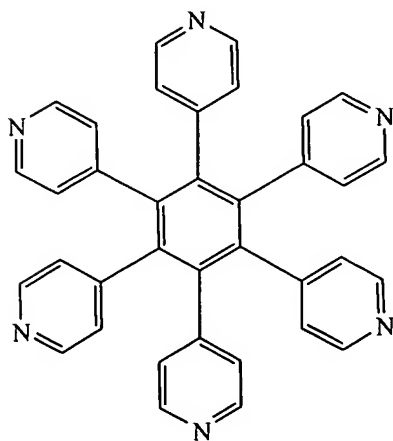
47. (Original) The hexagonal prismatic supramolecule of claim 46, wherein M is Re.

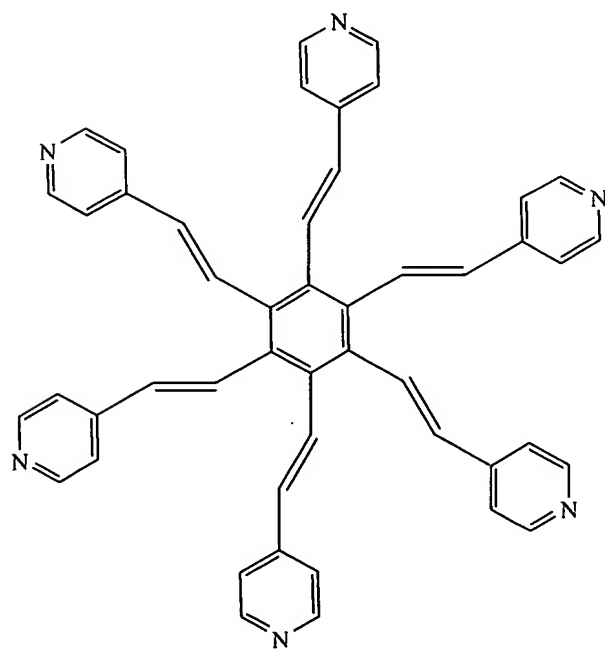
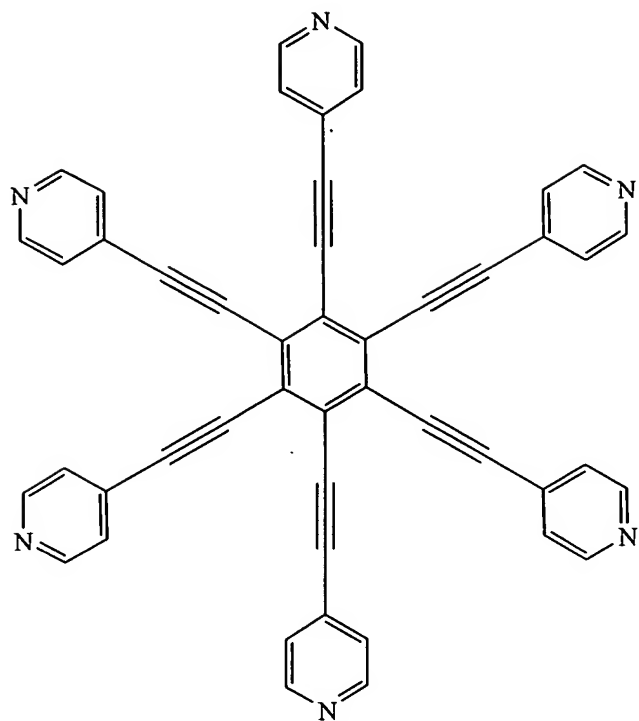
48. (Original) The hexagonal prismatic supramolecule of claim 47, wherein m is 3.

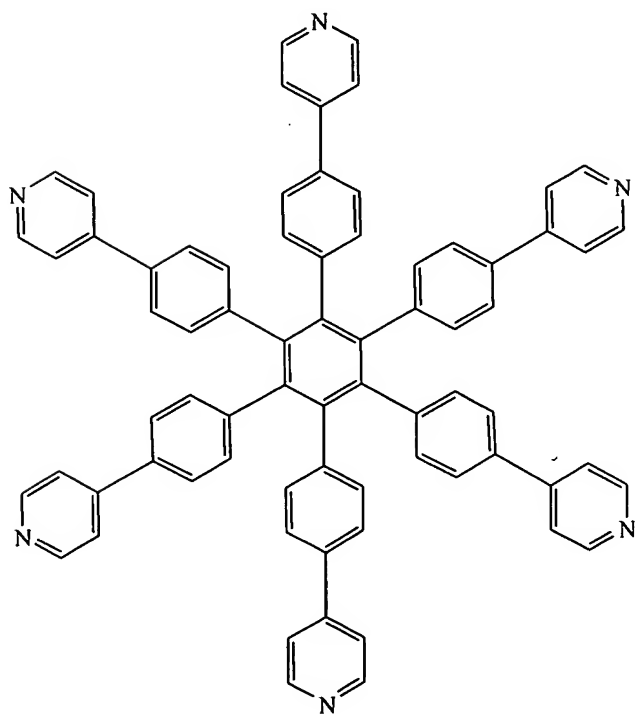
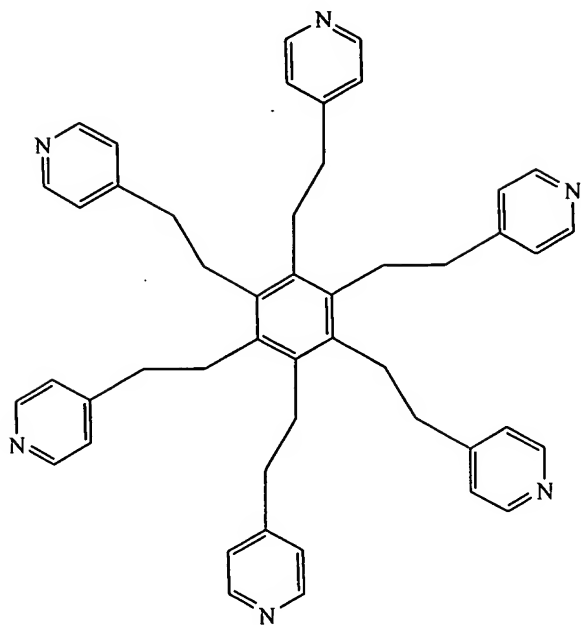
49. (Original) The hexagonal prismatic supramolecule of claim 46, wherein R is $C_1\sim C_{16}$ straight chain alkyl.

50. (Original) The hexagonal prismatic supramolecule of claim 46, wherein A is O.

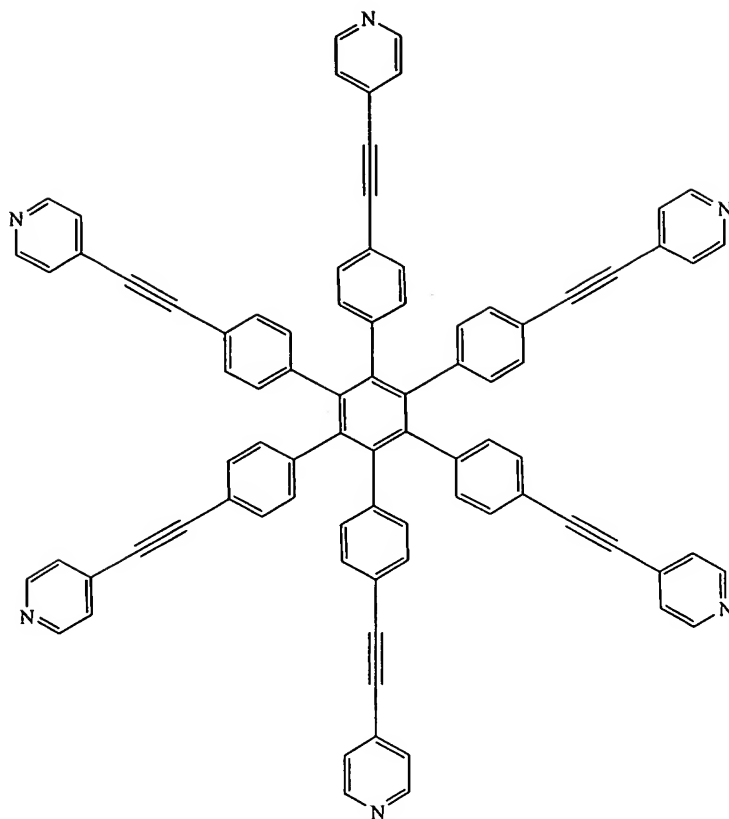
51. (Original) The hexagonal prismatic supramolecule of claim 46, wherein T is







, or



52. (Original) A method for making a hexagonal prismatic supramolecule of claim 46, the method comprising reacting $M(CO)_{m+2}$ with a nitrogen-based hexadentate ligand in the presence of an RAH at an elevated temperature to form the hexagonal prismatic supramolecule, wherein M, m, R, and A are as defined in claim 46.

53. (Original) The method of claim 52, wherein M is Re and m is 3.

54. (Original) The method of claim 52, wherein RAH is a $C_1 \sim C_{16}$ aliphatic alcohol.